

SEQUENCE LISTING

<110> Covacci, Antonio
 Bugnoli, Massimo
 Telford, John
 Macchia, Giovanni
 Rappuoli, Rino

<120> Helicobacter Pylori Cytotoxin Proteins Useful For
 Vaccines And Diagnostics

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<150> PCT/EP93/00472
 <151> 1993-03-02

<150> PCT/EP93/00158
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<170> PatentIn Ver. 2.1

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<211> 1147

<212> PRT

<213> Helicobacter pylori

<400> 5

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Asp Asn Ala Val Ala Ser Tyr Asp Pro Asp Gln Lys Pro Ile Val Asp
 35 40 45

Lys Asn Asp Arg Asp Asn Arg Gln Ala Phe Glu Gly Ile Ser Gln Leu
 50 55 60

Arg Glu Glu Tyr Ser Asn Lys Ala Ile Lys Asn Pro Thr Lys Lys Asn
 65 70 75 80

Gln Tyr Phe Ser Asp Phe Ile Asn Lys Ser Asn Asp Leu Ile Asn Lys
 85 90 95

Asp Asn Leu Ile Asp Val Glu Ser Ser Thr Lys Ser Phe Gln Lys Phe
 100 105 110

Gly Asp Gln Arg Tyr Arg Ile Phe Thr Ser Trp Val Ser His Gln Asn
 115 120 125

Asp Pro Ser Lys Ile Asn Thr Arg Ser Ile Arg Asn Phe Met Glu Asn
 130 135 140

Ile Ile Gln Pro Pro Ile Leu Asp Asp Lys Glu Lys Ala Glu Phe Leu
 145 150 155 160

Lys Ser Ala Lys Gln Ser Phe Ala Gly Ile Ile Ile Gly Asn Gln Ile
 165 170 175

Arg Thr Asp Gln Lys Phe Met Gly Val Phe Asp Glu Ser Leu Lys Glu

				180					185					190	
Arg	Gln	Glu	Ala	Glu	Lys	Asn	Gly	Glu	Pro	Thr	Gly	Gly	Asp	Trp	Leu
		195					200					205			
Asp	Ile	Phe	Leu	Ser	Phe	Ile	Phe	Asp	Lys	Lys	Gln	Ser	Ser	Asp	Val
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Lys	Glu	Ala	Ile	Asn	Gln	Glu	Pro	Val	Pro	His	Val	Gln	Pro	Asp	Ile
225					230					235					240
Ala	Thr	Thr	Thr	Thr	Asp	Ile	Gln	Gly	Leu	Pro	Pro	Glu	Ala	Arg	Asp
				245					250					255	
Leu	Leu	Asp	Glu	Arg	Gly	Asn	Phe	Ser	Lys	Phe	Thr	Leu	Gly	Asp	Met
			260					265					270		
Glu	Met	Leu	Asp	Val	Glu	Gly	Val	Ala	Asp	Ile	Asp	Pro	Asn	Tyr	Lys
		275					280					285			
Phe	Asn	Gln	Leu	Leu	Ile	His	Asn	Asn	Ala	Leu	Ser	Ser	Val	Leu	Met
	290					295						300			
Gly	Ser	His	Asn	Gly	Ile	Glu	Pro	Glu	Lys	Val	Ser	Leu	Leu	Tyr	Gly
305					310					315					320
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Tyr	Lys	Asp	Gln	Gln	Gly	Asn	Asn	Val	Ala	Thr	Ile	Ile	Asn	Val	His
			340					345					350		
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385					390					395					400
Glu	Phe	Leu	Ala	Gln	Asn	Asn	Ala	Lys	Leu	Asp	Asn	Leu	Ser	Glu	Lys
				405					410					415	
Glu	Lys	Glu	Lys	Phe	Arg	Thr	Glu	Ile	Lys	Asp	Phe	Gln	Lys	Asp	Ser
			420					425					430		
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Ala Leu Lys Gly Ser Val Lys Asp Leu Gly Ile Asn Pro Glu Trp Ile				
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Ser Lys Val Glu Asn Leu Asn Ala Ala Leu Asn Glu Phe Lys Asn Gly				
	740		745	750
Lys Asn Lys Asp Phe Ser Lys Val Thr Gln Ala Lys Ser Asp Leu Glu				
	755		760	765
Asn Ser Val Lys Asp Val Ile Ile Asn Gln Lys Val Thr Asp Lys Val				
	770		775	780
Asp Asn Leu Asn Gln Ala Val Ser Val Ala Lys Ala Thr Gly Asp Phe				
	785		790	795 800
Ser Arg Val Glu Gln Ala Leu Ala Asp Leu Lys Asn Phe Ser Lys Glu				
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Gln Leu Ala Gln Gln Ala Gln Lys Asn Glu Ser Leu Asn Ala Arg Lys				
	820		825	830
Lys Ser Glu Ile Tyr Gln Ser Val Lys Asn Gly Val Asn Gly Thr Leu				
	835		840	845
Val Gly Asn Gly Leu Ser Gln Ala Glu Ala Thr Thr Leu Ser Lys Asn				
	850		855	860
Phe Ser Asp Ile Lys Lys Glu Leu Asn Ala Lys Leu Gly Asn Phe Asn				
	865		870	875 880
Asn Asn Asn Asn Asn Gly Leu Lys Asn Glu Pro Ile Tyr Ala Lys Val				
	885		890	895
Asn Lys Lys Lys Ala Gly Gln Ala Ala Ser Leu Glu Glu Pro Ile Tyr				
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Ala Gln Val Ala Lys Lys Val Asn Ala Lys Ile Asp Arg Leu Asn Gln				
	915		920	925
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<211> 546

<213> Helicobacter pylori

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Met Met
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 <212> DNA
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 ggtttgagga atatcacggc tggggctaac cctattgaag tgaaacgagg catggataaa 420
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<212> DNA
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<220>
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Sequence

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18

<210> 9
<211> 12
<212> PRT
<213> Helicobacter pylori

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<210> 10
<211> 5
<212> PRT
<213> Helicobacter pylori

<400> 10
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